Amendments to the Specification

Please replace the paragraph beginning at page 1, line 12, with the following new paragraph:

Chemically cross-linked materials have been ~~used in~~ used to form microparticles. The cross-linkable material forming the matrix can be a synthetic polymer or a natural polymer or protein, for example. The microparticles formed with these materials have been used for biomedical applications, primarily in the areas of drug delivery, immunoassay, and cell separation technologies. Chatterjee, et al., *J. Mag. Magn. Mat.* 225:21 (2001) discloses a method of forming encapsulated particles by dissolving a polymer and a particular inorganic particle in an aqueous solvent, forming an oil-in-water emulsion, and stabilizing the particles using chemical cross-linking. The stabilization by chemical cross-linking can undesirably permit agglomeration. It therefore would be desirable to avoid using a chemical cross-linker in a process for forming microparticles. It would be particularly desirable to make such nanoparticles without requiring an emulsion polymerization reaction.

Please replace the paragraph beginning at page 1, line 26, with the following new paragraph:

A method is provided for microencapsulating an agent. In one aspect, the method comprises forming, at a first temperature, ~~a emulsion~~ an emulsion which comprises aqueous microdroplets, including the agent and a cross-linkable matrix material, dispersed in a hydrophobic continuous phase comprising an oil and an oil-soluble surfactant, the first temperature being below the temperature effective to initiate cross-linking of the matrix material, and then heating the emulsion to a temperature and for a time effective to cause the matrix material to self-crosslink, to form microparticles comprising the agent encapsulated by the crosslinked matrix material. In one embodiment, the emulsion is formed by sonicating a mixture of an aqueous dispersion of the agent, in which the matrix material has been dissolved, with a hydrophobic liquid, such as an oil. In one embodiment, the step of heating the emulsion comprises mixing the emulsion into a second quantity of the hydrophobic liquid which has been heated. In one embodiment, the method further includes isolating the microparticles from the hydrophobic liquid.

Please replace the heading and paragraph beginning at page 3, line 26, with the following new paragraph:

<u>Detailed</u> Description of the Invention

Improved microencapsulation methods have been developed for making microparticles using a heat induced cross-linking process. In one embodiment, the method includes forming, at a first temperature, ~~a emulsion~~ <u>an emulsion</u> which comprises aqueous microdroplets, including the agent (e.g., a magnetic material or drug) and a cross-linkable matrix material (e.g., a protein such as albumin), dispersed in a hydrophobic continuous phase comprising an oil soluble surfactant, the first temperature being below the temperature effective to initiate cross-linking of the matrix material, and then heating the emulsion to a temperature and for a time effective to cause the matrix material to self-crosslink, to form microparticles comprising the agent encapsulated by the crosslinked matrix material. The heat treatment step was used to cause the formation of intermolecular bonds between adjacent matrix material chains, e.g., the formation of disulfide bridges between the free SH groups on adjoining protein chains. Thus, the thermal denaturation is a curing process that yields a crosslinked polymer network structure. Microspheres comprised of heat-stabilized albumin encapsulating maghemite were found to be more stable and more polydisperse than microspheres made by a chemical crosslinking process. Smaller more uniform particles result from the present process, which is also relatively quicker and easier to use than conventional chemical cross-linking processes.